Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Preserving the Open Internet	)	GN Docket No. 09-191
	)	
Broadband Industry Practices	)	WC Docket No. 07-52

To: The Commission

COMMENTS OF THE SATELLITE BROADBAND COMMENTERS

January 14, 2010

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SUMMARY

The Satellite Broadband Commenters share the Commission's commitment in this proceeding "to encourage investment and innovation, promote competition, and protect the rights of users." Satellite systems are a critical component of the Nation's broadband delivery ecosystem and are the most cost-effective broadband option for many of the estimated 11 million U.S. households currently outside the reach of terrestrial networks, and the only way to provide mobile broadband service for users in areas unserved by terrestrial wireless systems.

Satellite broadband networks providers – like providers of all shared access platforms – must rely on platform-specific network management practices to protect users and the network from harm, to address congestion, and to ensure that all users receive the appropriate quality of service for the subscription plan of their choosing. To the extent the Commission adopts any rules in response to the *Notice*, broadband providers must have the ability – with appropriate disclosure and transparency, of course – to utilize current techniques or those that may be developed or required over time to protect the integrity of their networks and users' overall broadband experience.

With regard to the "any device" concept, it is important to note that the equipment needed to provide satellite-delivered broadband Internet access service is properly deemed part of the network as its use is subject to Commission licensing (as an earth station), satellite provider policies to avoid interference to other satellites or harm to the network, and professional installation requirements in some cases. Satellite providers in general need the ability to continue to set their own equipment and protocol standards in order to protect against devices that could cause harm, including undue strain on the network. Of course, in the context of fixed satellite broadband service for example, once the antenna is installed (along with the associated modem), consumers can attach to it any personal computer or wireless router they wish.

The Satellite Broadband Commenters support retaining the broadest flexibility for providers of managed or specialized services to employ network management techniques that provide users with the level and type of service which they demand and expect. The customers of managed or specialized satellite services typically are sophisticated entities fully capable of pursuing a service package with the quality of service terms they require. Any FCC rules that would restrict a broadband provider's ability to accommodate such marketplace demands would be counterproductive to the Commission's goals of encouraging innovation, investment, competition and consumer choice.

The Satellite Broadband Commenters support the principle of transparency but urge the Commission to ensure that any requirements it might adopt in this context consider the issues faced by satellite services, and do not undermine legitimate network management techniques.

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The Satellite Broadband Commenters[1] respectfully submit the following comments in response to the *Notice of Proposed Rulemaking* ("*Notice*") in the above-captioned proceeding proposing the adoption of net neutrality rules for providers of broadband Internet access service.[2]

The Satellite Broadband Commenters share the Commission's commitment in this proceeding "to encourage investment and innovation, promote competition, and protect the rights of users, including promoting speech and democratic participation."[3] Satellite provider practices embrace Internet openness today and provide a quality broadband experience consistent with their subscribers' service plans and expectations. To the extent the Commission advances a regulatory regime here, it is imperative to do so in a way that ensures that each broadband platform has sufficient flexibility to engage in network management practices that are reasonable

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[1] The Satellite Broadband Commenters are providers of broadband Internet access service, as well as providers of transmission capacity used for broadband service, and include The Boeing Company, Hughes Network Systems, LLC, Inmarsat, Inc., SES World Skies, Inc., TerreStar Networks Inc., and WildBlue Communications, Inc.

[2] In the Matter of Preserving the Open Internet; Broadband Industry Practices, *Notice of Proposed Rulemaking*, GN Docket No. 09-191, WC Docket No. 07-52, FCC 09-93, 24 FCC Rcd 13064 (October 22, 2009) ("*Notice*").

[3] *Notice* at ¶ 133.

to ensure the availability and delivery of the types of services the users of that platform demand and expect.

I. INTRODUCTION

Satellite systems are a critical component of the broadband delivery ecosystem – as the Commission has observed, "satellite facilities provide a competitive platform for delivery of broadband services, which is especially well-suited for extending these services to rural and unserved areas."[4] Today, nearly one million subscribers utilize satellite broadband. The launch of two super-high capacity satellites over the next two years will bring a quantum leap forward in technology as the relatively young satellite broadband industry reaches the next generation in service performance. Satellite is already the most cost-effective broadband option for many of the estimated 11 million U.S. households currently outside the reach of terrestrial networks (whether in rural areas or in unserved pockets of ex-urban areas), and the only way to provide mobile broadband service to people who live in or travel through areas unserved by terrestrial wireless systems. Consumers and enterprise users, as well as first responders, increasingly rely on satellite broadband when their communities are not served by terrestrial wired or wireless networks or redundancy is needed due to disruptions on those other networks.

A vivid demonstration of the importance of satellite communications is unfolding in Haiti this week, where satellite broadband communications are providing a vital link for rescue and recovery efforts, as well as news reporting of the crisis created by the recent earthquake. These broadband capabilities are key requirements of the aid efforts, and satellite providers have had to

[4] 2000 Biennial Regulatory Review -- Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations and Space Stations; Streamlining the Commission's Rules and Regulations for Satellite Applications and Licensing Procedures, *Eighth Report and Order and Order on Reconsideration*, 23 FCC Rcd 15099 at ¶1 (2008).

actively manage their networks to ensure essential communications are maintained in these challenging conditions.

Specific references to satellite-delivered broadband services appear in just two sentences in the *Notice*, and both references are in the context of considering "how, in what time frames or phases, and to what extent" the proposed rules should apply to non-wireline forms of Internet access.[5] To address these questions, the Satellite Broadband Commenters maintain that a thorough understanding of satellite broadband technology and its capabilities by the Commission is essential to ensuring, if any policies or rules are applied to the broadband industry generally, they are sufficiently flexible to accommodate the steps that satellite broadband providers must take to maximize the efficiency of their networks and optimize the broadband experience for their subscribers. These network management objectives are identical to the objectives of terrestrial broadband network operators, but, as explained below, the nature of satellite technology and the measures network designers have taken to maximize broadband functionality necessarily means that the steps satellite network providers take to achieve these objectives will be different in some respects from the steps terrestrial network operators will take. Ultimately, the value of satellite broadband services could be undermined by overly restrictive rules that fail to take into account the continuing technological changes that characterize each new generation of satellite systems.

The Satellite Broadband Commenters submit these comments to emphasize the role of satellite systems in the nation's broadband delivery ecosystem and to highlight that satellite broadband network providers – like operators of all shared access platforms – must rely on

[5] *Notice* at ¶¶ 16 and 154.

platform-specific network management practices to ensure that all of their users receive the appropriate quality of service for the subscription plan of their choosing.

II. SATELLITE BROADBAND SERVICES FOR CONSUMERS, GOVERNMENT AND PUBLIC SAFETY ARE GROWING

Satellites play a critical and growing role in the delivery of broadband services across the nation. As of the end of 2008, approximately 842,000 U.S. consumers relied on satellite-delivered broadband.[6] Today industry estimates show that there are over 1 million satellite broadband subscribers, many of whom are located in the most remote areas of the United States, and others of whom are located in unserved pockets of ex-urban areas. In addition, satellite services are vital for U.S. public safety and homeland security, and demand remains as strong as ever.[7] Satellites are used for critical public safety services on a day-to-day basis by federal, state, and local governments, public safety agencies and commercial entities.[8] Indeed, in times when disaster recovery is needed, satellites are often the only means to establish communication links, as demonstrated by the crisis unfolding in Haiti following the devastating earthquake there.

Satellite-delivered broadband service is reliable and effective – and is becoming more so with continuing technological advances. Satellites now deliver broadband via fixed-satellite service at download speeds of up to 5 Mbps. Upload speeds via fixed-satellite service are also increasing, and now are approaching 1 Mbps on some systems. These speeds allow for the full

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[6] Satellite Industry Association, State of the Satellite Industry Report 2009, at 18 (June 2009), *available at* http://www.sia.org/news_events/2009_State_of_Satellite_Industry_Report.pdf ("*2009 State of the Satellite Industry Report*").

[7] *See*, *e.g.*, Defense Information Systems Agency, *Commercial SATCOM Update*, at 18 (Apr. 2009), *available at* http://www.disa.mil/conferences/2009/briefings/satcom/Commercial_SATCOM_DISA_Conference_2009.ppt (showing growth in U.S. military demand for fixed satellite services and bandwidth from 2000-2007).

[8] Satellite Industry Association, *First Responder's Guide to Satellite Communications*, available at http://www.sia.org/frg_files/FirstResponder%27sGuidetoSatelliteCommunications.pdf.

range of broadband capabilities, including full email, large file transfers and complete Internet access. Satellites also deliver mobile-satellite broadband user speeds equivalent to DSL levels that enable broadband capabilities including Internet access and streaming video, both on the download and upload links.

Even faster speeds allowing for an even more extensive menu of services soon will be possible with the deployment of improved satellites now under construction in both the fixed-satellite and mobile-satellite services. For example, next generation mobile satellite services will be capable of providing both full-time, stand-alone service and ubiquitous roaming and backup service in areas unserved by terrestrial wireless networks, all through devices that cost about the same as terrestrial-only models.

Satellites also serve emerging niche markets of users that need broadband service when traveling. A full range of satellite-delivered broadband services is becoming available to passengers and crew on airplanes in flight, on ships at sea, and now on in-motion motorized vehicles.[9] These new markets are expanding rapidly, and demonstrate the growing reach of satellite-delivered broadband.

III. FLEXIBLE NETWORK MANAGEMENT PRACTICES ARE ESSENTIAL FOR SATELLITE BROADBAND SYSTEMS, LIKE ALL SHARED ACCESS PLATFORMS

Providers of fixed, terrestrial wireless, and satellite shared broadband access platforms must engage in sound network management practices in order to address the dramatic growth in and ever-changing nature of broadband traffic, to deal with congestion issues and ensure that

[9] *See* Second Annual Report and Analysis of Competitive Market Conditions with Respect to Domestic and International Satellite Communications Services, *Second Report*, 23 FCC Rcd 15170 at ¶ 71 (2008).

their users receive the quality of service that meets the subscription plan of their choosing, and to avoid harm to the network and users. Ultimately, all shared network providers – regardless of platform – must engage in traffic shaping practices and quality of service techniques to deliver a quality broadband experience for as many users as possible.

The Commission correctly recognizes the need for such network management, asserting that an Internet access provider "may be justified in taking reasonable steps to reduce or mitigate the adverse effects of that congestion or to address quality-of-service concerns."[10] It goes on to identify and seek comment on a handful of practices that could be deemed reasonable:

- "temporarily limit[ing] the bandwidth available to individual users in [a] neighborhood who are using a substantially disproportionate amount of bandwidth" during a period of congestion[11];
- "limiting usage or charging subscribers based on their usage rather than a flat monthly fee"[12];
- "prioritizing classes of latency-sensitive traffic over classes of latency-insensitive traffic"[13]; and
- "blocking spam . . . malware or malicious traffic originating from malware, as well as any traffic that a particular user has requested be blocked (*e.g.*, blocking pornography for a particular user who has asked the broadband Internet access service provider to do so)."[14]

These types of practices are used in one form or another by most if not all broadband providers, regardless of platform. To the extent the Commission adopts any rules in response to the *Notice*, such rules and policies must, in the Satellite Broadband Commenters' view, preserve the ability of broadband providers – with appropriate disclosure and transparency, of course – to utilize

[10] *Notice* ¶ 136.
[11] *Id.*
[12] *Id.* ¶ 137.
[13] *Id.*
[14] *Id.*¶ 138 (footnote omitted).

these techniques and others that may be developed or required over time to protect the integrity of their networks and the overall broadband experience.

In the context of the current generation of satellite broadband systems, for example, it is possible that a small percentage of subscribers that concurrently run applications utilizing many simultaneous network connections could consume 90 percent or even more of the available satellite resources. This would slow or delay access to all other subscribers and diminish the broadband experience for all network users. Satellite network providers should have the ability to preemptively address this situation by assigning a download threshold to each service plan that limits the amount of data that may be continuously downloaded within specified time periods and establishing in disclosure materials that any subscribers who exceed this limit will experience a temporary reduction of speed until the data download rate falls back below the threshold. An approach like this does not involve discrimination against high-bandwidth users or targeting of specific applications; instead, there is only a recognition that it is reasonable for satellite providers to provide the maximum availability of network resources to all users.

Internet access providers, including satellite broadband providers, engage in other network management practices to ensure the quality of latency-sensitive traffic such as web browsing, VoIP, and video conferencing. They use algorithms and other software techniques to optimize quality of service for such traffic, without causing undue delay to the delivery of non-latency-sensitive traffic such as email. These techniques enhance the overall broadband experience users enjoy.

Some providers offering service in a shared access environment (including spectrum-based services) may offer users a higher quality of service experience that would seek to ensure enhanced performance by a variety of techniques, such as dedicating additional spectrum to this

service offering, prioritizing certain kinds of traffic, or other traffic management techniques. Provided this class of service is explained in advance in disclosure materials made available to users, this sort of managed traffic offering should be allowed.

Of course, these are merely examples of reasonable network management techniques – many more are currently employed and other targeted network management innovations are under development. As the *Notice* correctly recognizes, "[w]hat constitutes congestion, and what measures are reasonable to address it, may vary depending on the technology platform for a particular broadband Internet access service."[15] Because core applications and the practices network service providers will take to ensure their availability will both continue to change rapidly over time, it is important that any policies or rules considered here allow providers the ability to adjust their practices at a similar pace.

The *Notice* also seeks comment on application of the "any device" concept in the mobile wireless broadband context and "[w]ho should ensure that devices are non-harmful: the providers themselves, third-party organizations, industry associations/laboratories, or the Commission?"[16] For satellite-delivered services, the equipment needed to provide broadband Internet access service is properly deemed part of the network as its use is subject to Commission licensing (as an earth station),[17] satellite provider policies to avoid interference to other satellites or harm to the network, and professional installation requirements in some cases. Satellite providers in general need the ability to continue to set their own equipment and protocol standards in order to

[15] *Notice* at ¶ 137.

[16] *Id.*

[17] FCC rules generally prohibit any person from transmitting to a satellite "unless the specific transmission is first authorized by the satellite network control center." 47 C.F.R. § 25.272(d)(2). Prior authorization from the satellite network control center also is required before an earth station operator changes "the basic characteristics of a transmission." 47 C.F.R. § 25.273(a)(1). Additionally, end user transceivers in the Mobile Satellite Services prohibit transmissions except with the permission of the satellite operator or blanket license holder. *See, e.g.,* 47 C.F.R. §§ 25.135 and 25.136.

protect against devices that could cause harm, including undue strain on the network. Of course, in the context of fixed satellite service broadband service, for example, once the antenna is installed (along with the associated modem), consumers can attach to it any personal computer or wireless router they wish.

In summary, network providers must have the ability to choose the network management alternatives that best meet their abilities to satisfy subscribers' broadband needs and should be able to change, discontinue, or adopt new techniques as needed to improve traffic flow and protect the integrity of the network. These techniques or their application, moreover, may vary among broadband platforms, depending on the service providers' objectives and the needs of its subscribers.

IV. MANAGED SERVICES ARE A CRITICAL ELEMENT OF SATELLITE OFFERINGS, AND REQUIRE MAXIMUM FLEXIBILITY IN NETWORK MANAGEMENT PRACTICES

The *Notice* seeks comment on whether it would be appropriate to apply the rules as proposed to managed or specialized IP-based offerings (including voice and subscription video services and certain business services provided to enterprise customers).[18] This issue is of significant interest to satellite providers because many of them provide IP-based managed or specialized services to federal, state and local governments and enterprise customers.

The Satellite Broadband Commenters support retaining the broadest flexibility for providers of managed or specialized services to employ network management techniques that provide users with the level and type of service which they demand and expect. The customers of managed or specialized satellite services typically are sophisticated entities fully capable of pursuing a service package with the quality of service terms they require. In some cases, for

[18] *Notice* at ¶¶ 148-153.

example, government and enterprise customers negotiate per-bit pricing arrangements for mobile satellite broadband services; and, they demand that the satellite provider block or limit access to certain bandwidth-intensive traffic or certain social networking or entertainment web sites in order to avoid congestion on their service, to limit service fees, and to assist in maintaining compliance with the employer's general workplace policies. Other government or enterprise users might seek dedicated capacity to ensure they have guaranteed access when they need it, or ask for prioritization of emergency communications. Any FCC rules that would restrict a broadband provider's ability to accommodate such marketplace demands would be counterproductive to the Commission's goals of encouraging innovation, investment, competition and consumer choice.

V. TRANSPARENCY PROMOTES INFORMED USER CHOICE BUT MUST NOT UNDERMINE LEGITIMATE NETWORK MANAGEMENT GOALS

The *Notice* proposes the adoption of a transparency rule whereby a provider of broadband Internet access service would be required to disclose information concerning network management and other practices to users and to content, application and service providers.[19] The Satellite Broadband Commenters fully agree that transparency serves an important function in protecting and empowering users and notes that the marketplace already has embraced this principle. Many broadband Internet service providers, including satellite providers, voluntarily disclose key congestion management practices to users and the public generally.

The Satellite Broadband Commenters endorse the principle of transparency, but they urge the Commission to move cautiously in the event it adopts a rule in this context. The Commission has tentatively endorsed mandatory disclosure of actual (as opposed to advertised) transmission

[19] *Id.* at ¶¶ 118-119.

rates,[20] but this issue deserves further consideration. For example, network speeds vary by geographic location, whether measured in two different satellite spot beams or two different wireline DSL neighborhoods. Broadband speeds, moreover, also vary by time of day and day of the week, and they evolve over time. For mobile satellite services, the actual broadband speed that will be available to a user in motion within the large geographic coverage area of a particular satellite spot beam is especially difficult to identify because of all the potential variables.

The Commission also should proceed with caution with respect to the nature and extent of any required disclosures on network management techniques. As noted previously, Government and large corporate users are a significant customer base for satellite services, and many satellite providers offer managed broadband service to such users via the same infrastructure used to provide service to other commercial customers. The Commission should be careful not to require a level of disclosure for network management practices for Government or other managed or specialized services that would reveal information that could compromise the integrity of those services. Further, as the *Notice* recognized, the purpose of the disclosure is not to encourage or enable users and/or content and application providers to circumvent legitimate network management techniques.[21] In this regard, providers of managed broadband access services should have flexibility to provide meaningful transparency as to network management practices without creating undue security risks.

[20] *Id. at* ¶ 125.
[21] *Id. at* ¶ 131.

CONCLUSION

For the reasons discussed above, satellite broadband is a critical component of the Nation's broadband delivery ecosystem. To the extent the Commission advances a regulatory regime here, it is imperative to do so in a way that ensures that each broadband platform has sufficient flexibility to engage in network management practices that are reasonable to ensure the availability and delivery of the types of services the users of that platform demand and expect. The Commission should also recognize the importance of managed services and flexibility within the principle of transparency.

Respectfully submitted,

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